

KUNG-FU MASTERTM



INSTALLATION INSTRUCTIONS



DATA EAST USA, INC.

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WARNING

This equipment generates and uses radio frequency energy and if not installed and used properly, i.e., in strict accordance with the instructions manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

CAUTION

EMI Shield must be securely installed in order to protect against undesirable radio interference.

K U N G - F U M A S T E R

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NOTE: Schematic set for ASAHI model 6352 power supply was not available for inclusion in this manual at press time. Refer any problems to the DATA EAST Service Department.

KUNG-FU MASTERtm

G A M E P L A Y

1. You are a Kung-Fu Master. Your girlfriend has been kidnapped by criminals and locked up on the 5th floor of their headquarters. Get into their headquarters and save your girlfriend!
2. On your way up to the 5th floor, various criminals will block your way. Defeat the criminals by using your Kung-Fu techniques.
3. Masters at various martial arts appear at the end of each floor. You cannot go upstairs unless you defeat them. Remaining energy of the masters is indicated by the energy gauge.
4. Press "PUNCH" button to punch, press "KICK" button to kick.
5. Jiggle the joystick quickly to shake off enemy holds.
6. The game will be over if either your energy or your allotted time runs out.
7. At the end of the 4th floor, may wizards will appear. You must guess which one is the real wizard and defeat him.

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O P T I O N S W I T C H S E T T I N G S

DIP SWITCH #1

OPTION		SWITCH	1	2	3	4	5	6	7	8
DIFFICULTY	EASY		OFF							
	DIFFICULT		ON							
DECREASE OF ENERGY	SLOW			OFF						
	FAST			ON						
NUMBER OF FIGHTERS	2				ON	OFF				
	3				OFF	OFF				
	4				OFF	ON				
	5				ON	ON				
COIN SELECTION (SWITCH #3 of DIP SWITCH #2 MUST BE OFF)	1 COIN 1 PLAY						OFF	OFF	OFF	OFF
	2 COINS 1 PLAY						ON	OFF	OFF	OFF
	3 COINS 1 PLAY						OFF	ON	OFF	OFF
	4 COINS 1 PLAY						ON	ON	OFF	OFF
	5 COINS 1 PLAY						OFF	OFF	ON	OFF
	6 COINS 1 PLAY						ON	OFF	ON	OFF
	1 COIN 2 PLAYS						OFF	OFF	OFF	ON
	1 COIN 3 PLAYS						ON	OFF	OFF	ON
	1 COIN 4 PLAYS						OFF	ON	OFF	ON
	1 COIN 5 PLAYS						ON	ON	OFF	ON
	1 COIN 6 PLAYS						OFF	OFF	ON	ON
	FREE PLAY						ON	ON	ON	ON

DIP SWITCH #2

OPTION	SWITCH	1	2	3	4	5	6	7	8			
FLIP PICTURE?	NO	OFF		ALWAYS KEEP OFF	ALWAYS KEEP OFF		ALWAYS KEEP OFF					
	YES	ON										
CABINET TYPE	COCKTAIL TABLE		OFF									
	UPRIGHT		ON									
* FREEZE PICTURE?	NO					OFF						
	YES					ON						
NO DEATH MODE?	NO							OFF				
	YES							ON				
TEST MODE?	NO								OFF			
	YES								ON			

NOTE: * PRESS 2-PLAYER START BUTTON TO FREEZE PICTURE. PRESS 1-PLAYER START BUTTON TO LET IT MOVE AGAIN.

POWER SUPPLY:

+5 volts dc at 5 A (max)

+12 volts dc at 1.5 A (max)

ENVIRONMENT:

Operating temperature range: 0 to 50°C

Relative Humidity: 20 to 70%

MONITOR INTERFACE:

Video Signals: TTL Positive

Sync Signals: TTL Negative (Composite Sync)

Horizontal Frequency: 16 KHz

Vertical Frequency: 56.3 Hz

44 PIN EDGE CONNECTOR

SIGNAL ASSIGNMENTS

SIGNAL NAME	EDGE CONNECTOR PIN No.		SIGNAL NAME
GROUND (PCB PIN 1)	22	Z	GROUND (PCB PIN 2)
GROUND (PCB PIN 3)	21	Y	GROUND (PCB PIN 4)
	20	X	
COIN COUNTER A	19	W	
1 P LEFT (PCB PIN 9)	18	V	2 P LEFT (PCB PIN 10)
1 P RIGHT (PCB PIN 11)	17	U	2 P RIGHT (PCB PIN 12)
1 P KICK (PCB PIN 13)	16	T	2 P KICK (PCB PIN 14)
2 P START (PCB PIN 15)	15	S	1 P START (PCB PIN 16)
	14	R	COIN COUNTER B (PCB PIN 18)
COIN B (PCB PIN 19)	13	P	COMPOSIT SYNC (PCB PIN 20)
+ 12 VOLTS (PCB PIN 21)	12	N	+ 12 VOLTS (PCB PIN 22)
+ 12 VOLTS (PCB PIN 23)	11	M	+ 12 VOLTS (PCB PIN 24)
SPEAKER (-) (PCB PIN 25)	10	L	SPEAKER (+) (PCB PIN 26)
1 P PUNCH (PCB PIN 27)	9	K	2 P PUNCH (PCB PIN 28)
RED (PCB PIN 29)	8	J	GREEN (PCB PIN 30)
BLUE (PCB PIN 31)	7	H	
2 P UP (PCB PIN 33)	6	F	2 P DOWN (PCB PIN 34)
1 P UP (PCB PIN 35)	5	E	1 P DOWN (PCB PIN 36)
SERVICE SWITCH	4	D	COIN A (PCB PIN 38)
+ 5 VOLTS (PCB PIN 39)	3	C	+ 5 VOLTS (PCB PIN 40)
+ 5 VOLTS (PCB PIN 41)	2	B	+ 5 VOLTS (PCB PIN 42)
GROUND (PCB PIN 43)	1	A	GROUND (PCB PIN 44)

NOTE: 2 P controls for UP, DOWN, LEFT, RIGHT, KICK & PUNCH are for Cocktail Table games only.

C A U T I O N !

PCB PIN NUMBERS DIFFER FROM
EDGE CONNECTOR NUMBERS

C A U T I O N ! PCB PIN NUMBERS DIFFER FROM EDGE CONNECTOR PIN NUMBERS C A U T I O N !

DIAGNOSTIC MODE TESTS

The diagnostic program is activated by turning switch 8 of Dip Switch 2 to the ON position and turning the power switch ON. This diagnostic program is composed of 8 independent tests, the first two (RAM test and ROM test) of which initiate automatically as the power switch is turned ON. After these two tests end, the TV monitor displays a list of the next six tests as described below:

- 01 DIP SWITCH
- 02 I-O PORT
- 03 SOUNDS
- 04 CHARACTER
- 05 COLOR
- 06 CROSS HATCH PATTERN

Move the joystick to position the cursor at the desired test and then press the 1-Player button to start the test.

To return to the test list:

Press the 2-Player button (except when 02 I-O PORT test ends). As the 02 I-O PORT test ends, move the joystick left (the 1-Player joystick for table type games) while pressing the 2-player button.

When all the necessary testing is completed, turn the power switch OFF and turn switch 8 of Dip Switch 2 to the OFF position.

1. RAM TEST

If RAM is OK, "RAM OK" appears on the TV monitor.

If RAM is faulty: "RAM NG XXXX YY ZZ"
(Faulty RAM address)(RAM input data)(RAM output data)
appears on the TV Monitor.

Press the 1-Player button to continue RAM TEST, or

Press the 2-Player button to end this test and advance to ROM TEST.

2. ROM TEST

If ROMs are OK the following appears on the TV Monitor:

RAM OK
ROM 0 OK
ROM 1 OK
ROM 2 OK
ROM 3 OK

If any of the ROMs are faulty, for instance ROM 1, the following appears on the TV Monitor:

RAM OK
ROM 0 OK
ROM 1 NG
ROM 2 OK
ROM 3 OK

3. DIP SWITCH TEST While the TV monitor displays the test list, control the joystick to position the cursor at 01 and press the 1-Player button.

This test shows the state of the switches of Dip Switch 1 and 2 and the results of game adjustments.

Dip Sw	1	2	3	4	5	6	7	8	
DSW 1	0	0	0	0	0	0	0	0	1=ON
DSW 2	0	0	0	0	0	0	0	1	0=OFF
COIN MODE A				1	COIN	1	PLAY		
COIN MODE B				1	COIN	2	PLAYS		
BODY TYPE					UPRIGHT				
DIFFICULTY					EASY				
DECREASE					SLOW				
FIGHTERS					3				

4. I-O PORT TEST When the TV Monitor displays the test list, control the joystick to position the cursor at 02 and press the 1-Player button.

This test checks if all the switches on the Control Panel and Coin Doors are working correctly. The following display appears.

INTERFACE 1	1	2	3	4	5	6	7	8	
READ DATA	0	0	0	0	0	0	0	0	
INTERFACE 2	1	2	3	4	5	6	7	8	
READ DATA	0	0	0	0	0	0	0	0	
INTERFACE 3	1	2	3	4	5	6	7	8	1 = ON
READ DATA	0	0	0	0	0	0	0	0	0 = OFF

TIMING n n n n

* TIMING starts a 0000 and adds one count approximately every second.

INTERFACE 1-1	...	1-Player Start Button
1-2	...	2-Player Start Button
1-3	...	Service Switch
1-4	...	Coin Switch A
INTERFACE 2-1	...	1P Joystick RIGHT
2-2	...	1P Joystick LEFT
2-3	...	1P Joystick DOWN
2-4	...	1P Joystick UP
2-6	...	1P PUNCH button
2-8	...	1P KICK button
INTERFACE 3-1	...	2P Joystick RIGHT
3-2	...	2P Joystick LEFT
3-3	...	2P Joystick DOWN
3-4	...	2P Joystick UP
3-5	...	Coin Switch B
3-6	...	2P PUNCH button
3-8	...	2P KICK button

To terminate this test and bring the test list back to the TV monitor, move the joystick LEFT while depressing the 2-Player button.

5. SOUND TEST When the TV Monitor displays the test list, control the joystick to position the cursor at 03 and press the 1-Player button.

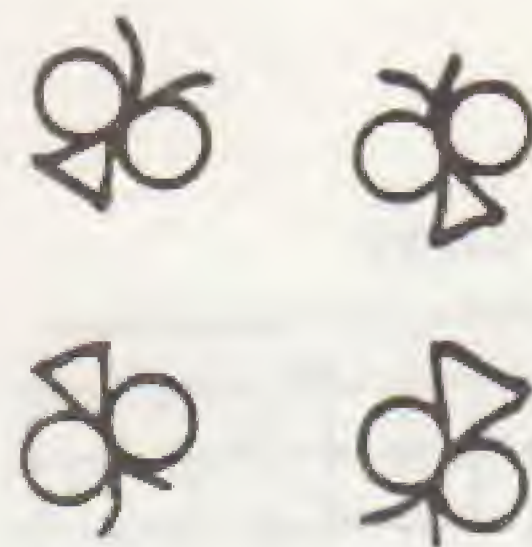
A table of sounds appears on the TV Monitor.

SOUNDS	
01	YELL OF PLAYER (JUMP-KICKS) CREDIT ADDING SOUND
02	YELL OF PLAYER (PUNCHES, KICKS)
03	GROAN OF PLAYER OR ENEMY
04	LAUGHING VOICE OF ENEMIES-1
05	LAUGHING VOICE OF ENEMIES-2
06	BURSTING OF PAPER BALL BURSTING OF DRAGON'S EGG
07	SHRIEK OF PLAYER
08	PLAYER RUNNING
09	HITTING SOUND (PUNCHES, KICKS)
10	SWISHING SOUND
11	BURSTING OF SNAKE POT
12	BITING SOUND
13	SOUND OF KNIVES, BOOMERANGS
14	COUNTING POINTS
15	GAME START
16	BGM
17	COMPLETION OF EACH PATTERN
18	COMPLETION OF GAME
19	GAME OVER
20	TIME UP WARNING
21	ADDITIONAL FIGHTER MUSIC END

Select a sound by positioning the cursor with the joystick. Depressing the 1-Player button repeats the sound.

6. CHARACTER TEST When the TV Monitor displays the test list, control the joystick to position the cursor at 04 and press the 1-Player button.

The TV Monitor displays four moths which are flipped vertically and horizontally as shown below.



Moving the joystick to the left will display 4 characters;

1. Kung-Fu Master
2. Knife Thrower
3. Man of Brute Force
4. Boss of Organization X

7. COLOR TEST While the TV Monitor displays the test list, control the Joystick to position the cursor at 05 and press the 1-Player button.

This test is comprised of five independent checks. Pressing the 1-Player button brings the check to the TV Monitor.

- (1) A row of letters A through Z appears along with a row of numbers 0 through 9 as shown below.

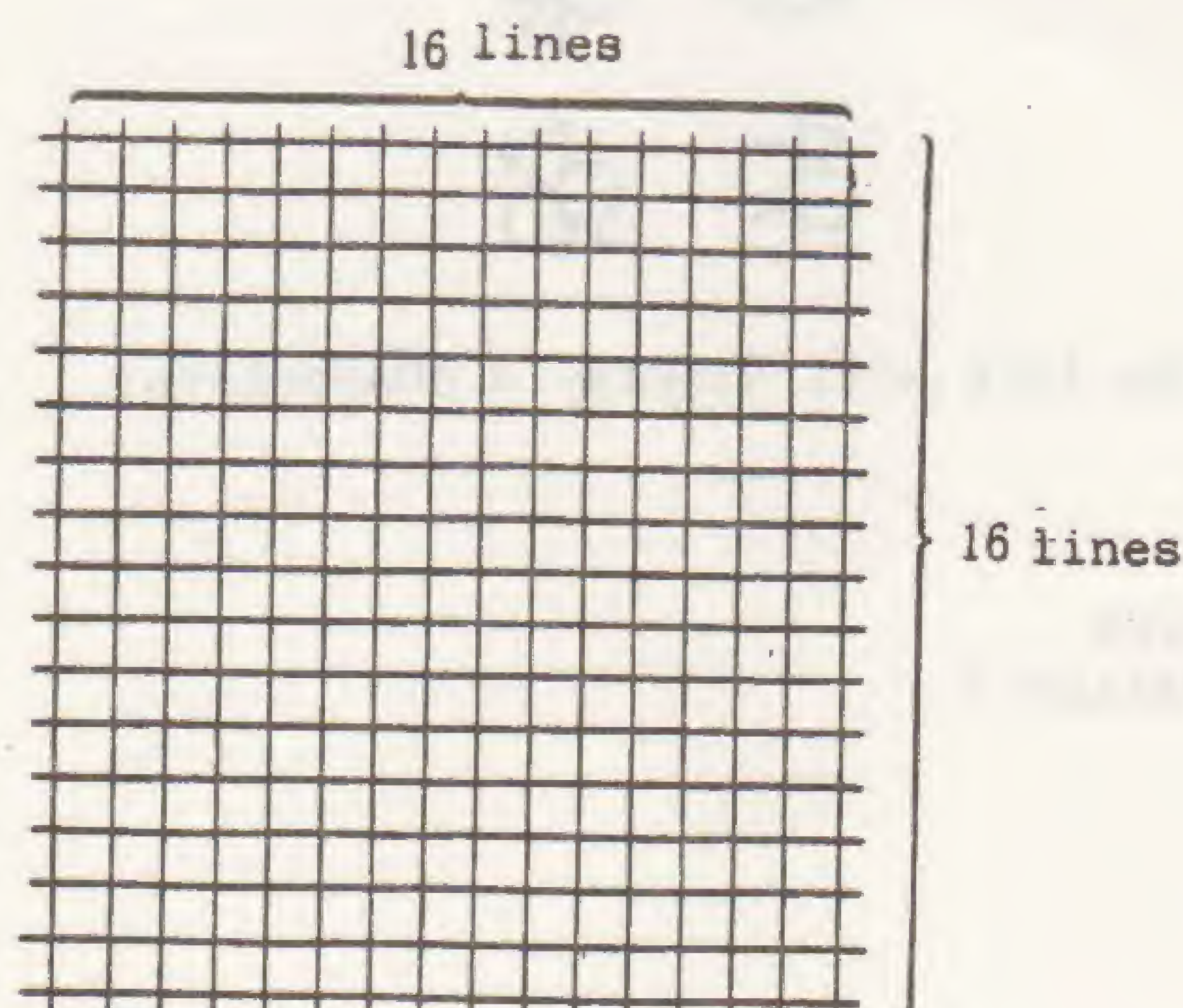
ABCDEFGHIJKLMNOPQRSTUVWXYZ
0123456789

- (2) Press the 2-Player button and a BLUE FIELD is displayed.
(3) Press the 2-Player button and a RED FIELD is displayed.
(4) Press the 2-Player button and a GREEN FIELD is displayed.
(5) Press the 2-Player button and a color Test Pattern is displayed as shown below.

CYAN							
BLACK							
BLACK	RED	GREEN	YELLOW	BLUE	PINK	CYAN	WHITE
WHITE							

8. CROSS HATCH PATTERN TEST While the TV monitor displays the test list, control the joystick to position the cursor at 06 and press the 1-Player button.

A Cross Hatch Pattern is displayed as shown below.



START

KUNG-FU MASTER * DIAGNOSTIC FLOW CHART

SET SWITCH 8 OF DIP SWITCH 2
TO "ON"

TURN POWER SWITCH TO "ON"

RAM TEST
OK?

NO

FAULTY RAM
INDICATED ON
TV MONITOR

PUSH 1P BUTTON
TO CONTINUE
RAM TEST

IF RAM OK
APPEARS

OR

PUSH 2P BUTTON TO
ADVANCE TO
ROM TEST

YES

ROM TEST
OK?

NO

REPLACE FAULTY
ROM

YES

PUSH 2P BUTTON

TEST LIST
DISPLAYED ON
TV MONITOR

SELECT TEST BY
OPERATING JOYSTICK

PUSH 1P BUTTON
TO START TEST

01 DIP SWITCH
TEST

02 I-O PORT
TEST

03 SOUND
TEST

04 CHARACTER
TEST

05 COLOR
TEST

06 CROSS HATCH
PATTERN

TEST ENDS?

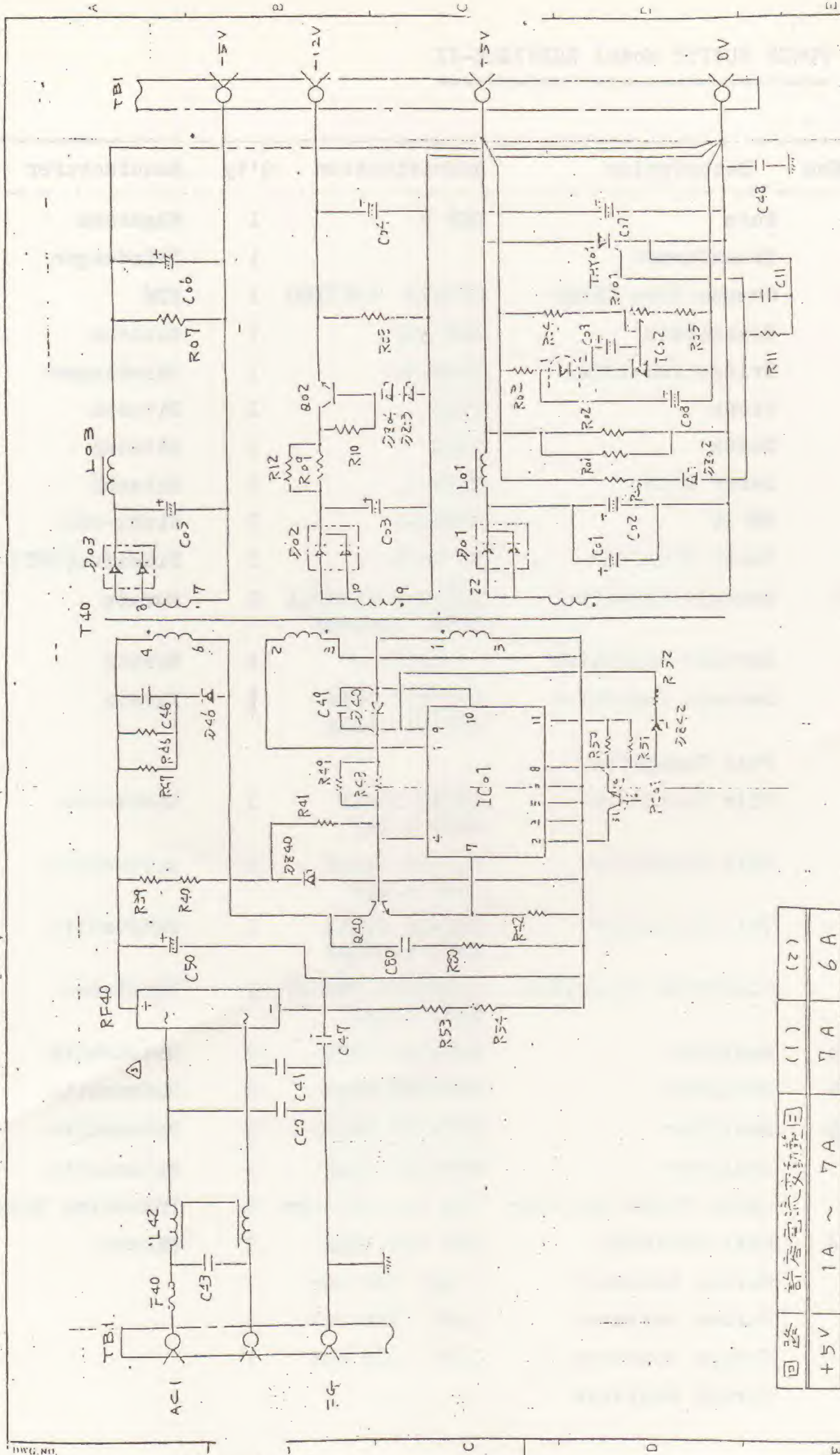
NO

YES

TURN POWER SWITCH TO "OFF"

SET SWITCH 8 OF DIP SWITCH 2
TO "OFF"

FINISH



回路	許容電流変動範囲	(1)	(2)
+5V	1A ~ 7A	7A	6A
+12V	0.2A ~ 1.5A	1.0A	1.5A
-5V	0.2A ~ 0.5A	0.5A	0.5A

但し出力容量は Total 250W

C49は実装されない。

SW. REGULATOR KAGA

APPRO. 承認 日 月 年

DATE 日 月 年

DESCRIPTION 記述

DATE 日 月 年

SHINDENGEN ELECTRIC MFG. CO., LTD.

SHINDENGEN ELECTRIC MFG. CO., LTD.

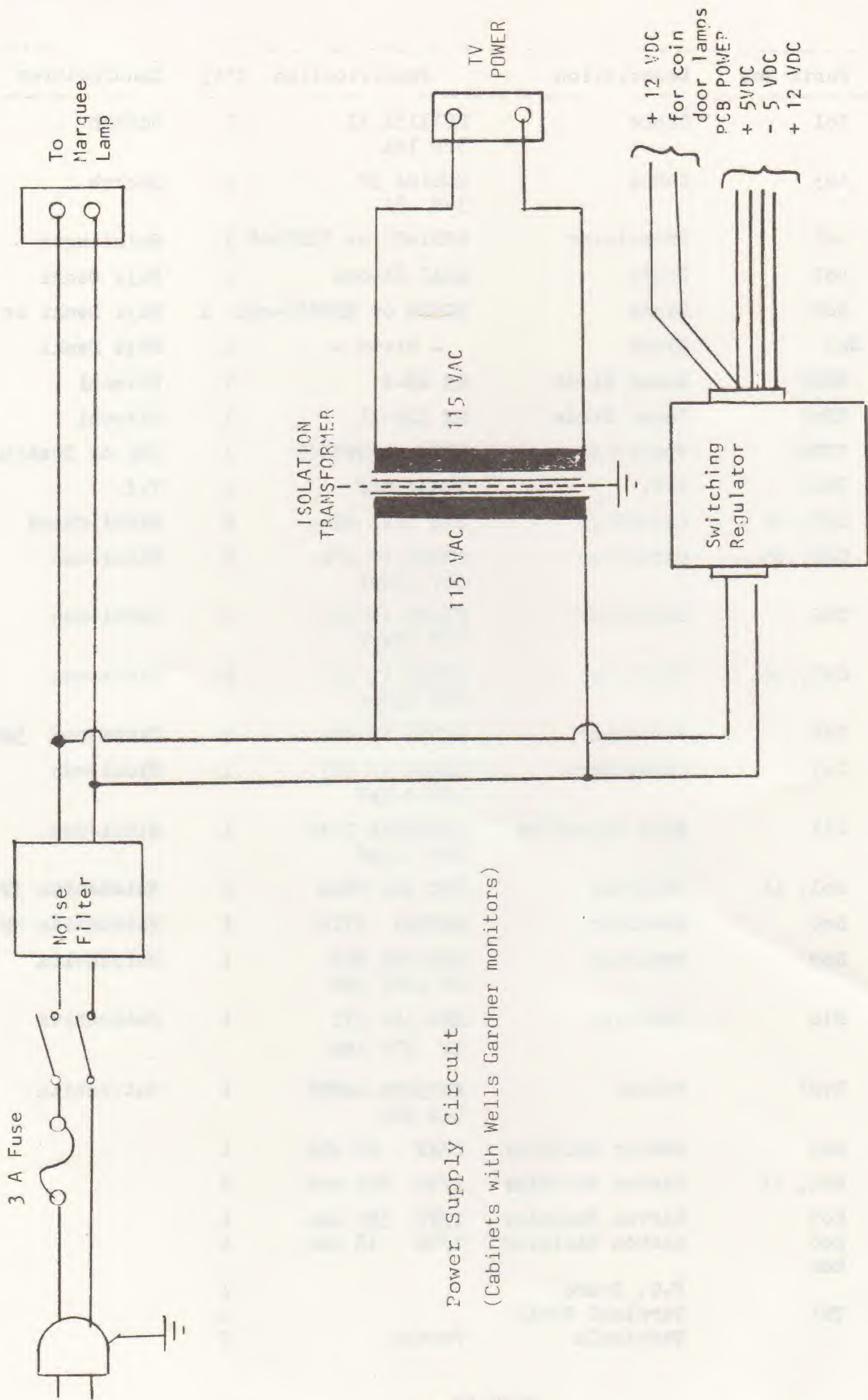
SHINDENGEN ELECTRIC MFG. CO., LTD.

POWER SUPPLY Model KGD23SMK-II

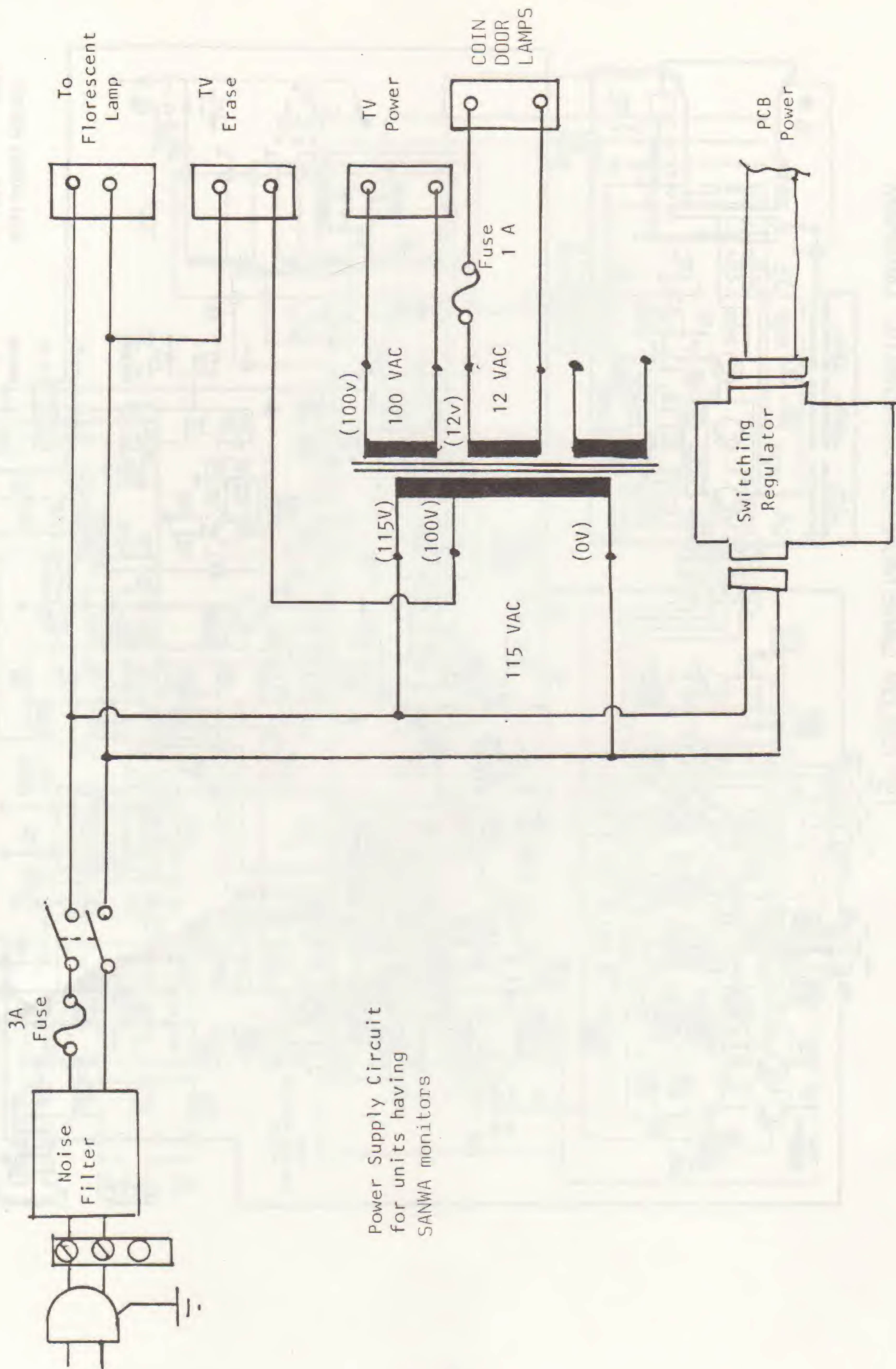
=====

Item	Parts Nos	Description	Specification	Q'ty	Manufacturer
1.	F4o	Fuse	GHS 5	1	Nagasawa
2.	T4o	Transformer		1	Shindengen
3.	L42	Common Mode Choke	UF327S 6o2YIRO	1	TDK
4.	Q4o	Transistor	2SC33o6	1	Toshiba
5.	RF4o	Bridge Rectifier	S3WB 4o	1	Shindengen
6.	D4o	Diode	V19C	1	Hitachi
7.	D46	Diode	V19G	1	Hitachi
8.	DZ4o	Zener Diode	HZ16-1	1	Hitachi
9.	ICo1	HB IC	RHDol-2	1	Nichi-con
1o.	PCo1	Photo Coupler	PS 2o18	1	Nichiden(NEC)
11.	C4o, 41	Seramic Capacitor	DE7o9oB 1o2KVA1 125V 1,ooopf	2	Murata
12.	C47	Seramic Capacitor	- ditto -	1	Murata
13.	C8o	Seramic Capacitor	DEo7o7B 681K 2KV DC 68op	1	Murata
14.	C42	Film Capacitor			
15	C43	Film Capacitor	QXM2G 1o4KT 4ooV o.1pf	1	Nichi-con
16.	C46	Film Capacitor	ECQ-E2 1o4KS 2ooV o.1pf	1	Matsushita
17.	C48	Film Capacitor	ECQ-E6 473KZ 4ooV o.o47pf	1	Matsushita
18.	C5o	Electrode Capacitor	LJA2D471 THSCBV 2ooV 47opf	1	Nichi-con
19.	R37, 4o	Resistor	ERG-1SJ 393H	2	Matsushita
2o.	R47, 46	Resistor	ERG-2SJ 223H	2	Matsushita
21.	R48, 49	Resistor	ERG-3SJ 56oH	2	Matsushita
22.	R8o	Resistor	ERG-2SJ 33oH	1	Matsushita
23.	R42	Metal Plate Resistor	MPC 7o o.22 ohm	1	Fukushima Futaba
24.	R53, 54	Coil Resistor	INS o5N 1ROJ	2	Micron
25.	R41	Carbon Resistor	1/4W 1oK ohm	1	
26.	R5o	Carbon Resistor	1/4W 68o ohm	1	
27.	R51	Carbon Resistor	1/4W 12K ohm	1	
28.	R52	Carbon Resistor			

Item	Parts Nos	Description	Specification	Q'ty	Manufacturer
29.	Lo1	Choke	RD1113A 3J 3uH 10A	1	Hokkoku
30.	Lo3	Choke	RD310A 3F 3uH 5A	1	Hokkoku
31.	Qo2	Transistor	2SD1022 or 2SD1308	1	Shindengen
32.	Do1	Diode	ESAC 83-004	1	Fuji Denki
33.	Do2	Diode	5CH2M or ESAC25-020	1	Fuji Denki or NEC
34.	Do3	Diode	- ditto -	1	Fuji Denki
35.	DZo2	Zener Diode	HZ 6B-2	1	Hitachi
36.	DZo3	Zener Diode	HZ 12B-1L	1	Hitachi
37.	THYo1	Thyristor	5PIM or SF5B41	1	NEC or Toshiba
38.	ICo2	I.C.	TL431 CLP	1	T.I.
39.	Co1, o2	Capacitor	SXA 16VB 2200	2	Nichi-Chemi
40.	Co3, o5	Capacitor	CEUSM 1V 47u 35V 470pf	2	Nichi-con
41.	Co4	Capacitor	CEUSM 1E 331 25V 330pf	1	Nichi-con
42.	Co7, o6	Capacitor	CEUSM 1E 331 25V 330pf	2	Nichi-con
43.	Co8	Capacitor	CEUSM 1H o10	1	Nichi-con 50V 1pf
44.	Co9	Capacitor	CEUSM 1V 4R7 35V 4.7pf	1	Nichi-con
45.	Cl1	Film Capacitor	TDY1H/2A 104K 50V 0.1pf	1	Nichi-con
46.	Ro1, 13	Resistor	ERG 3SJ 680H	2	Matsushita 3W 68Ω
47.	Ro8	Resistor	ERG3SJ 271H	1	Matsushita 3W 270Ω
48.	Ro9	Resistor	ERG 2SJ R68 2W 0.68 ohm	1	Matsushita
49.	R10	Resistor	ERG 1SJ 271 1W 270 ohm	1	Matsushita
50.	RVo1	Volume	EVM38GA 00B52 500 ohm	1	Matsushita
51.	Ro3	Carbon Resistor	1/4W 68 ohm	1	
52.	Ro4, 11	Carbon Resistor	1/4W 560 ohm	2	
53.	Ro5	Carbon Resistor	1/4W 390 ohm	1	
54.	Ro6	Carbon Resistor	1/4W 15 ohm	1	
55.	Ro2				
56.		P.C. Board		1	
57.	TB1	Terminal Strip		1	
58.		Terminals	Faston	7	

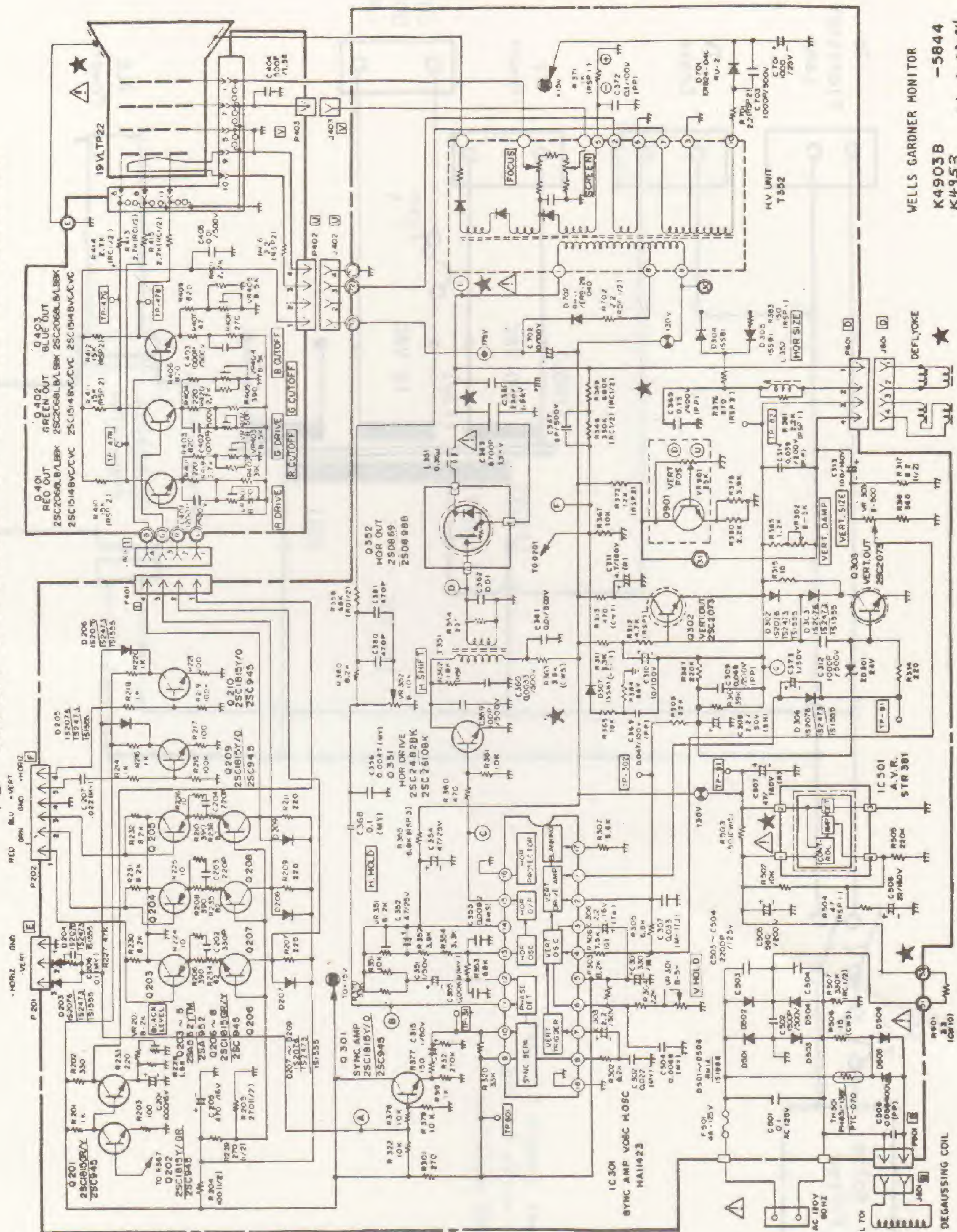


Power Supply Circuit
(Cabinets with Wells Gardner monitors)

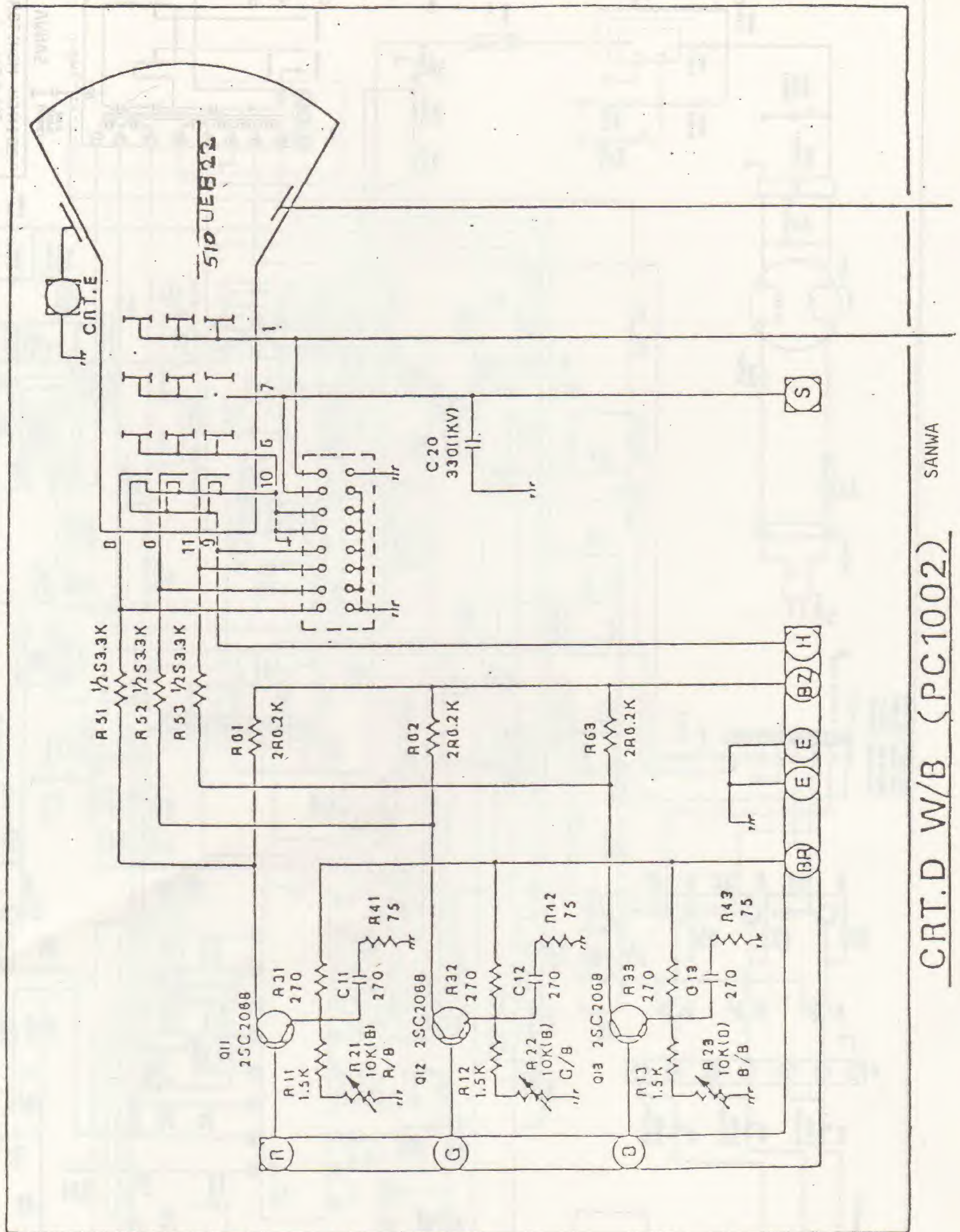


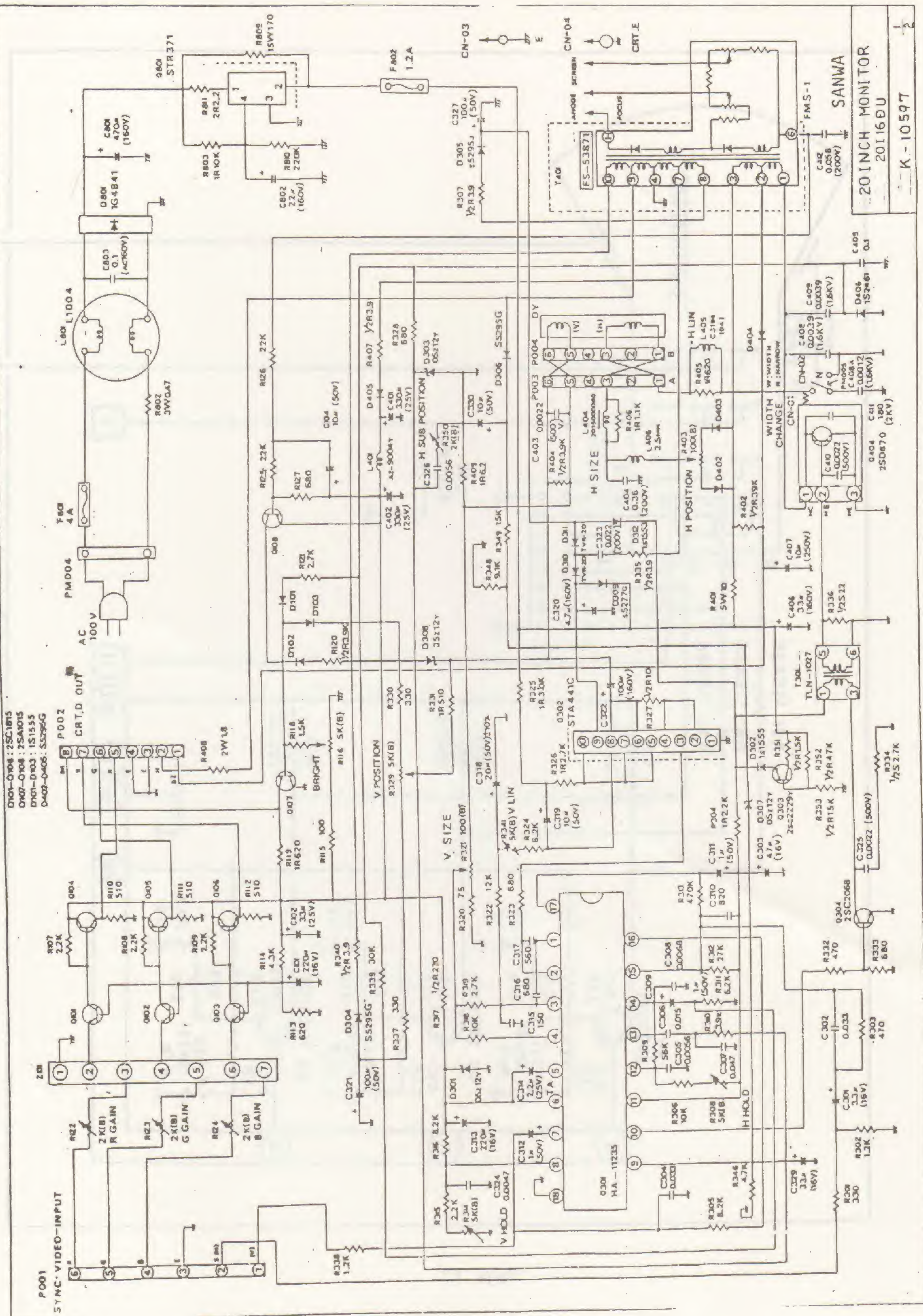
Power Supply Circuit
for units having
SANWA monitors

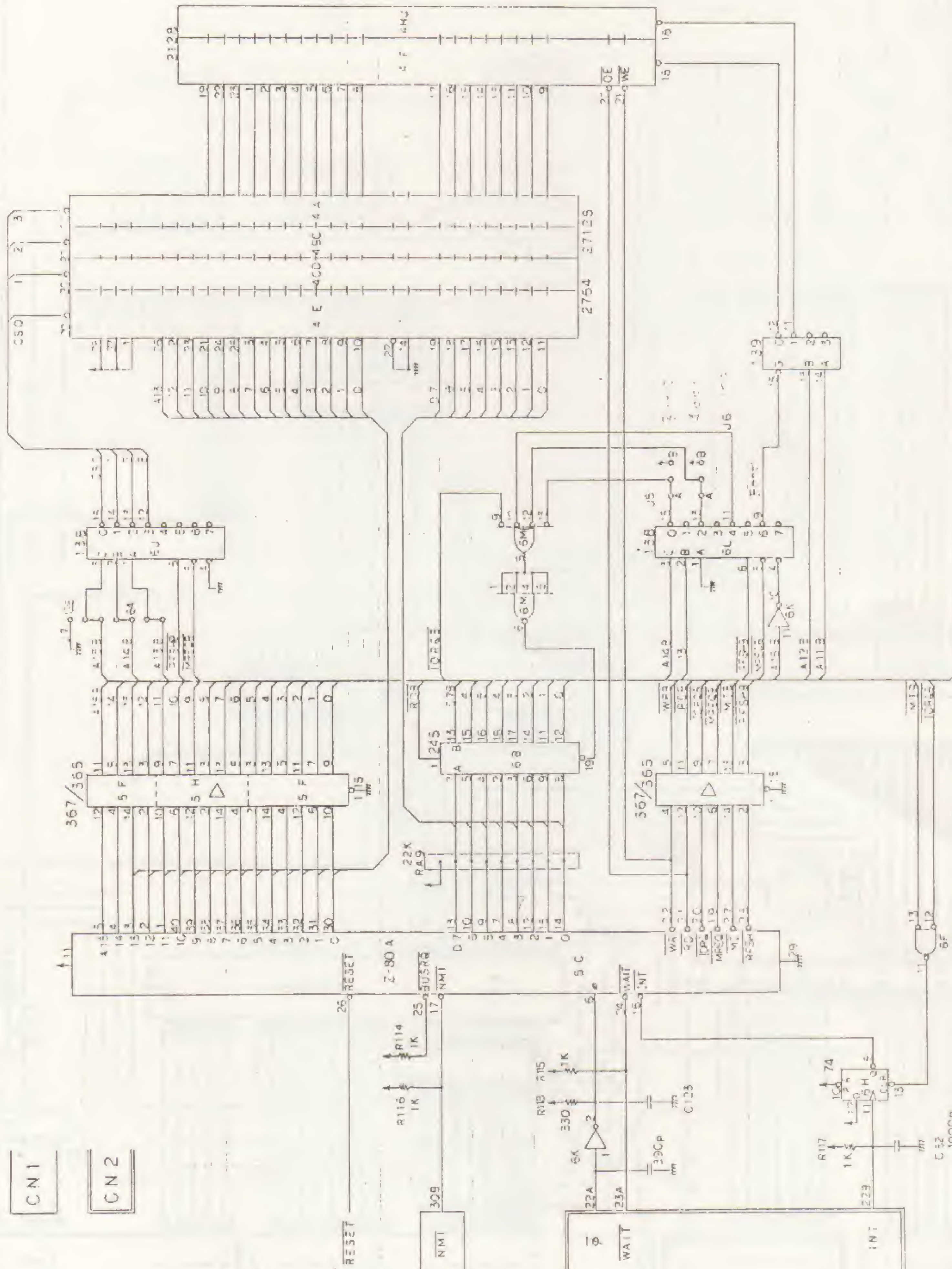
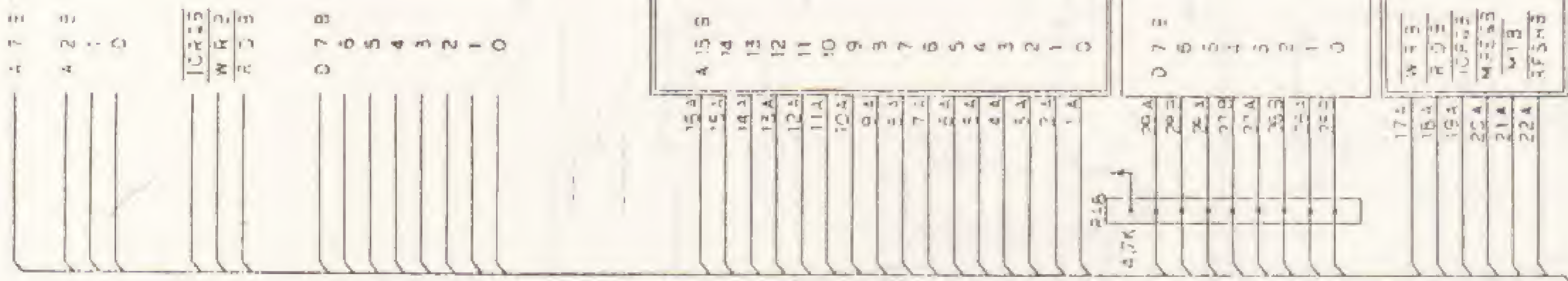
19" COLOR GAME MONITOR SCHEMATIC DIAGRAM



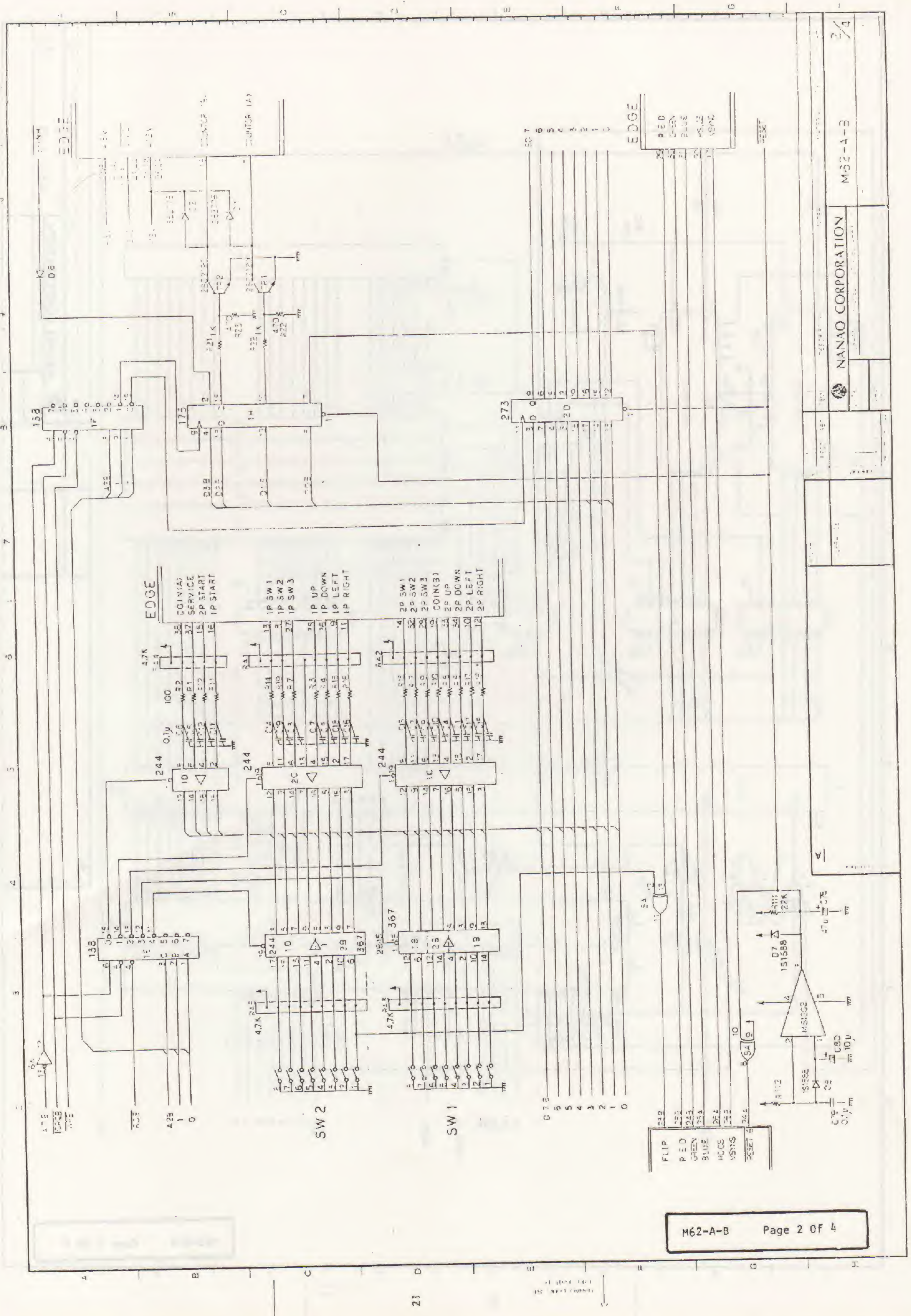
WELLS GARDNER MONITOR
K4903B
K4953
-5844
M.L. 2-23-84





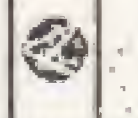


NANO CORPORATION		M52-A-B	
1/4			

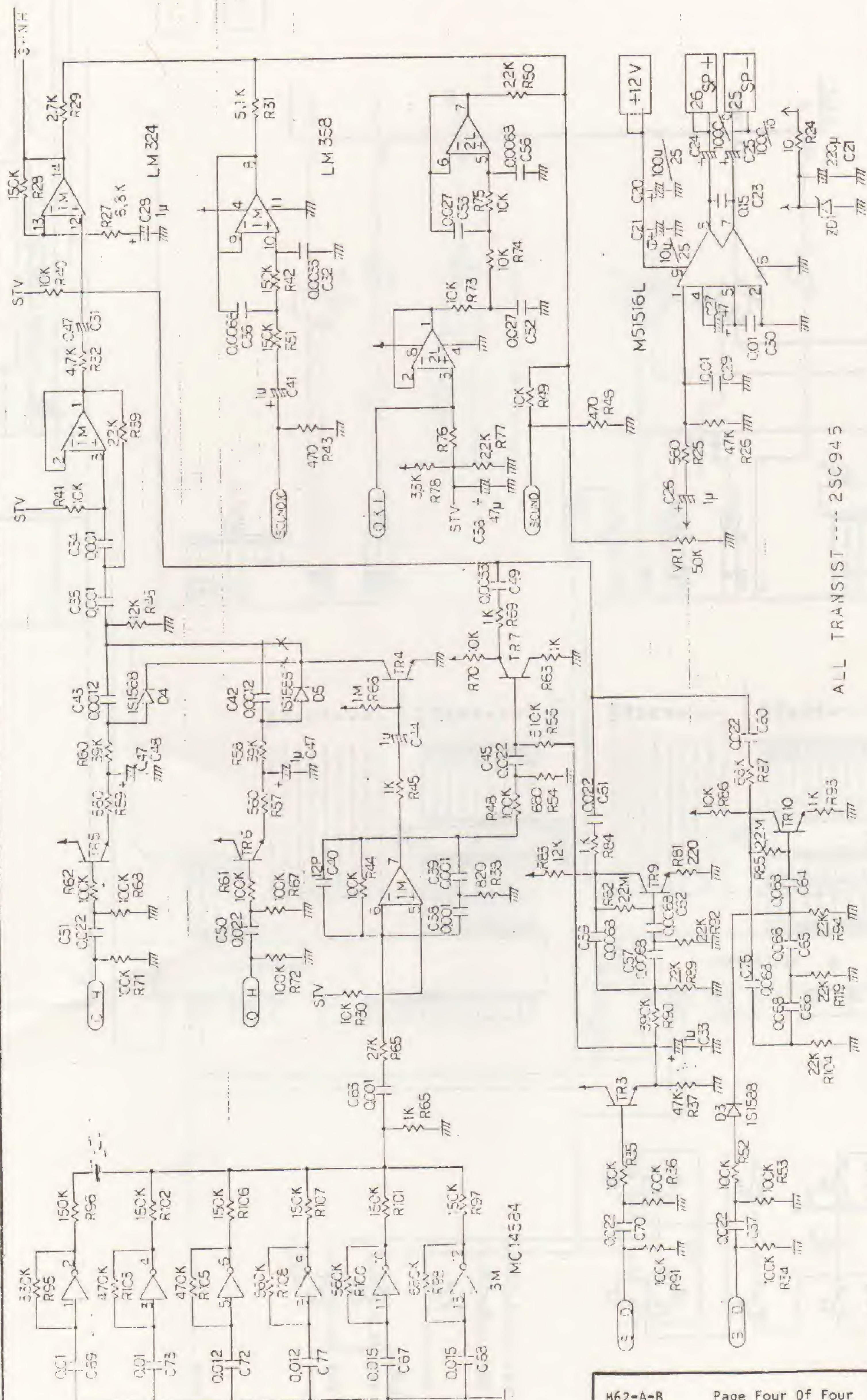


M62-A-B

NANO CORPORATION

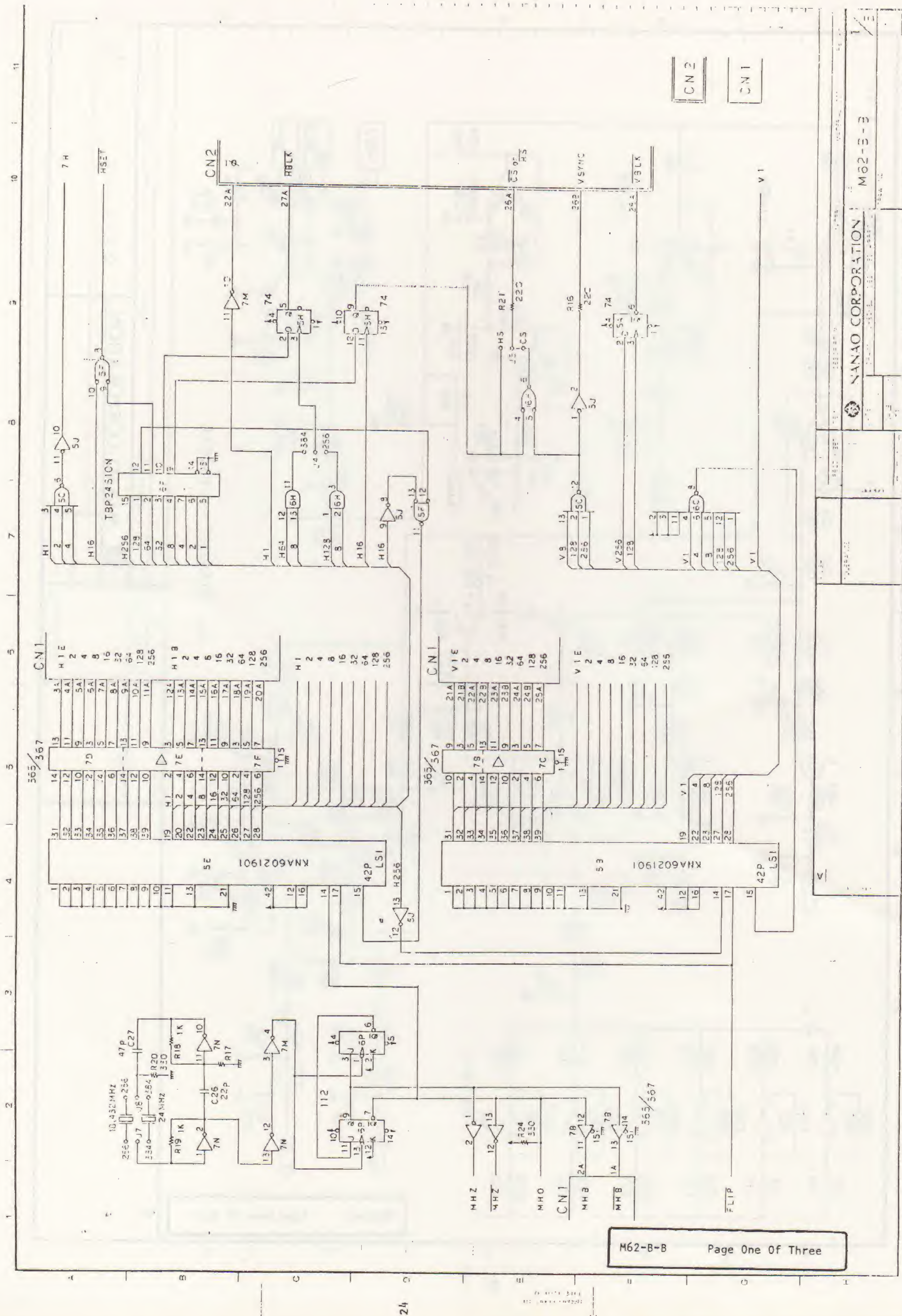


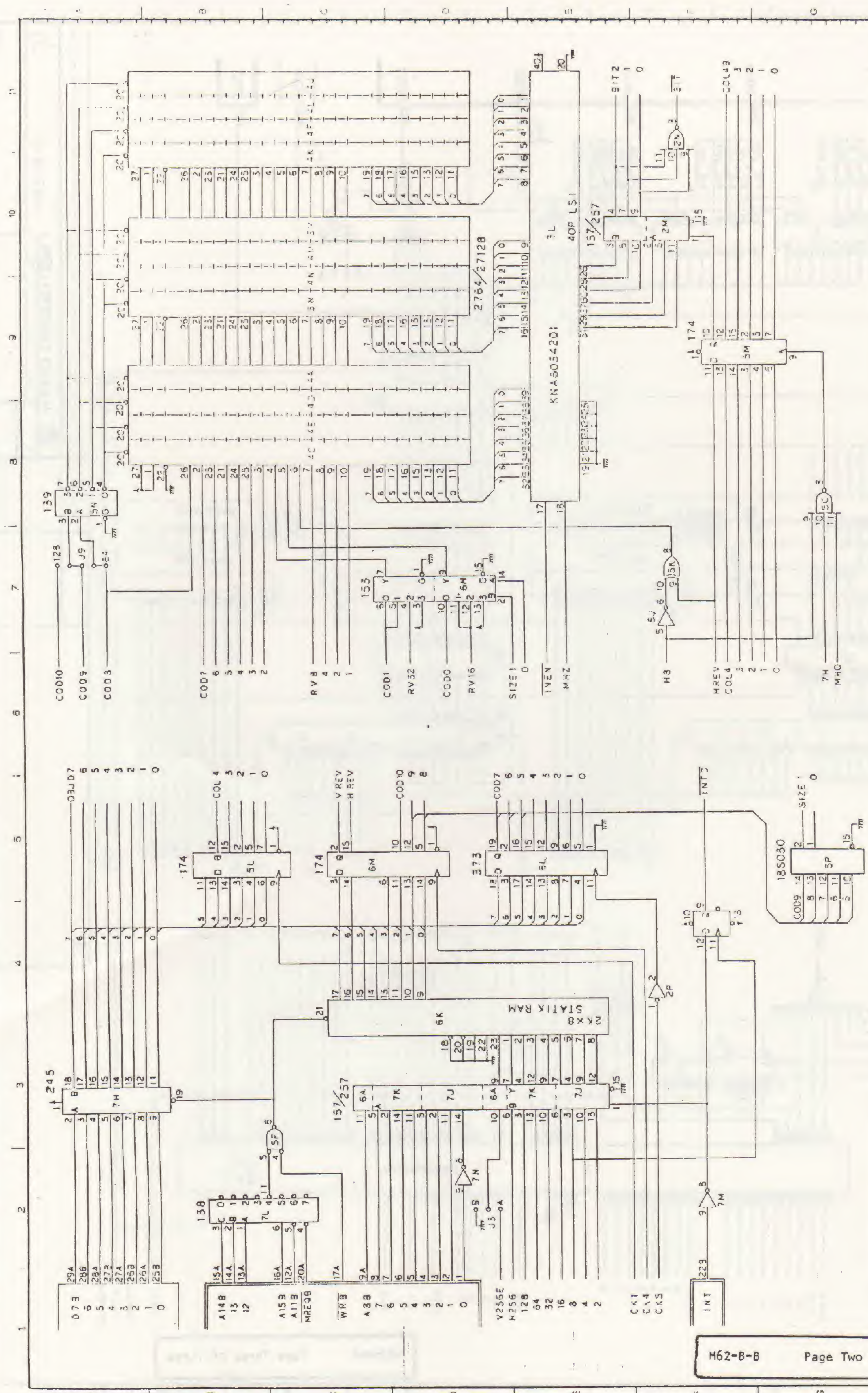
1 2 3 4 5 6 7 8



ALL TRANSIST - - - - 2SC945

REVISION		DESCRIPTION		DATE	
1					
2					
3					
4					
5					
6					
7					
8					
M62-A-B		NANAO CORPORATION		4/2	



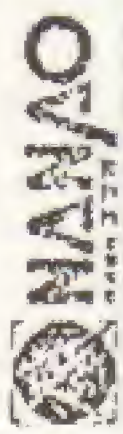


NANAO CORPORATION		M52-B-B		2/3	
REVISION		DATE		DRAWN	
CHECKED		APPROVED		DESIGNED	
TESTED		ASSEMBLED		INSPECTED	



TITLE		W62-G Parts List		NO.	DATE
SYMBOL NO.		DISCRIPTION			
2B	TTL-IC	74LS157N			
2C	"	"			
2D	"	74LS00N			
2F	"	74LS32N			
2H	"	74LS74AN			
2J	"	74LS85N			
3A	"	74LS245N			
3B	"	74LS27N			
3J	"	74LS86N			
3K	"	74LS74AN			
3L	"	74LS04N			
4A	"	74LS374N			
4B	"	74LS273N			
4J	"	74LS138N			
4K	"	74LS32N			
4L	"	74LS00N			
2A	"	74LS273N			
1C	S-RAM	1658725P or 1658725			
1D	"	"			
1 2A	CUSTOM-LSI	KNA6032701			
1 2E	"	KNA6032601			
3 4FH	"	KNA6034201			

1-55 9-1/4



SYMBOL NO.

DISCRIPTION

CN1

CONNECTOR XG3A-6014

CN2

Assy CONNECTOR (OJ40418A3) (2)

NANAO CORP. ST.
TYPE KA04-S

28

IC-SOCKET IC-02T-1603S4 (16P)

1F

"

1H

"

1J

"

4C

IC-02T-2806S4 (28P)

4D

"

4E

"

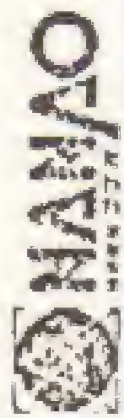
PCB

K62-G-A

PAGE

PAGE NO.

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SYMBOL NO.

DESCRIPTION

△△△

C1

Ceramic B 1000 pf K 50V

C2

Ceramic SL 220 pf J 50V

C3

" SL 220 pf J 50V

C4

Ceramic BC 0.1 uf Z 12V or 16V

C5

" 0.1 uf Z 12V or 16V

C6

" 0.1 uf Z 12V or 16V

C7

" 0.1 uf Z 12V or 16V

C8

" 0.1 uf Z 12V or 16V

C9

" 0.1 uf Z 12V or 16V

C10

" 0.1 uf Z 12V or 16V

C11

" 0.1 uf Z 12V or 16V

C12

" 0.1 uf Z 12V or 16V

C13

" 0.1 uf Z 12V or 16V

C14

" 0.1 uf Z 12V or 16V

C15

" 0.1 uf Z 12V or 16V

C16

" 0.1 uf Z 12V or 16V

C17

" 0.1 uf Z 12V or 16V

C18

" 0.1 uf Z 12V or 16V

C19

" 0.1 uf Z 12V or 16V

C20

" 0.1 uf Z 12V or 16V

C21

Ceramic B 1000 pf K 50V

C22

" SL 390 pf J 50V

C23

" SL 390 pf J 50V

△△△ Ceramic BC 0.1 uf Z 12V or 16V

△△△ F 0.1 uf Z 25V 3進加減算

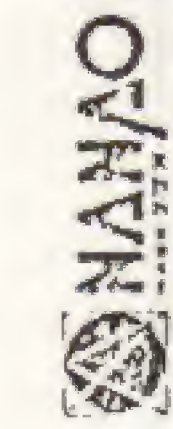
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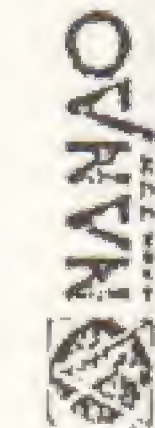
PAGE 3 OF 4



TITLE		NO.	DATE
M62-A		Parts List	
SYMBOL NO.	DESCRIPTION		
1B	TTL-IC	74LS367N	
1C	"	74LS244N	
1D	"	"	
1E	"	74LS138N	
1F	"	"	
1H	"	74LS175N	
1J	"	74LS139N	
1K	"	74LS10N	
2B	"	74LS367N	
2C	"	74LS244N	
2D	"	74LS273N	
2E	"	74LS138N	
2F	"	74LS373N	
2H	"	74LS173N	
2J	"	"	
5A	"	74LS86N	
5B	"	74LS368N	
5E	"	74LS365N/74LS267N	
5F	"	"	
5H	"	"	
6B	"	74LS245N	
6E	"	74LS365N/74LS367N	
6F	"	74LS32N	
6R	"	74LS74N	
6J	"	74LS138N	
6K	"	74LS04N	
6L	"	74LS158N	
6M	"	74LS20N	



SYMBOL NO.	DESCRIPTION		
4F	S-RAM	M58725P	
4H	"	"	
4K	CPU	6803	
5D	"	Z80A/D730C-1	
4L	SOUND-C	AY-3-8910	
4M	"	"	
2K	SOUND-SYNC	MSM5205	
3K	"	"	
1M	LINEAR-IC	LM324	
2L	"	LM358	
	COMPARATOR	M51202	
3M	C-MOS-IC	TC4537A	
1L	POWER-AMP	M51516L	



SYMBOL NO.	DESCRIPTION
	RESISTORS
R1	Carbon 100 ohm J \pm W 5% (UB)
R2	" 100 ohm J \pm W 5% (UB)
R3	" 100 ohm J \pm W 5% (UB)
R4	" 100 ohm J \pm W 5% (UB)
R5	" 100 ohm J \pm W 5% (UB)
R6	" 100 ohm J \pm W 5% (UB)
R7	" 100 ohm J \pm W 5% (UB)
R8	" 100 ohm J \pm W 5% (UB)
R9	" 100 ohm J \pm W 5% (UB)
R10	" 100 ohm J \pm W 5% (UB)
R11	" 100 ohm J \pm W 5% (UB)
R12	" 100 ohm J \pm W 5% (UB)
R13	" 100 ohm J \pm W 5% (UB)
R14	" 100 ohm J \pm W 5% (UB)
R15	" 100 ohm J \pm W 5% (UB)
R16	" 100 ohm J \pm W 5% (UB)
R17	" 100 ohm J \pm W 5% (UB)
R18	" 100 ohm J \pm W 5% (UB)
R19	" 100 ohm J \pm W 5% (UB)
R20	" 1K ohm J \pm W 5% (UB)
R21	" 1K ohm J \pm W 5% (UB)
R22	" 470 ohm J \pm W 5% (UB)
R23	" 470 ohm J \pm W 5% (UB)
R24	" 10 ohm J \pm W 5% (UB)
R25	" 560 ohm J \pm W 5% (UB)
R26	" 4.7K ohm J \pm W 5% (UB)
R27	" 6.8K ohm J \pm W 5% (UB)
R28	" 150K ohm J \pm W 5% (UB)
R29	" 2.7K ohm J \pm W 5% (UB)
R30	" 10K ohm J \pm W 5% (UB)
R31	" 5.1K ohm J \pm W 5% (UB)
R32	" 4.7K ohm J \pm W 5% (UB)
R33	" 100 ohm J \pm W 5% (UB)

DATE: 1-2-12

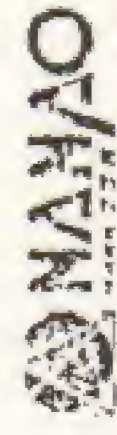
DATE: 1-2-12

SYMBOL NO.	DESCRIPTION
R34	Carbon 100K ohm J \pm W 5% (UB)
R35	" 100K ohm J \pm W 5% (UB)
R36	" 100K ohm J \pm W 5% (UB)
R37	" 47K ohm J \pm W 5% (UB)
R38	" 820 ohm J \pm W 5% (UB)
R39	" 22K ohm J \pm W 5% (UB)
R40	" 10K ohm J \pm W 5% (UB)
R41	" 10K ohm J \pm W 5% (UB)
R42	" 150K ohm J \pm W 5% (UB)
R43	" 470 ohm J \pm W 5% (UB)
R44	" 100K ohm J \pm W 5% (UB)
R45	" 1K ohm J \pm W 5% (UB)
R46	" 12K ohm J \pm W 5% (UB)
R47	" 100K ohm J \pm W 5% (UB)
R48	" 470 ohm J \pm W 5% (UB)
R49	" 10K ohm J \pm W 5% (UB)
R50	" 2.2K ohm J \pm W 5% (UB)
R51	" 150K ohm J \pm W 5% (UB)
R52	" 100K ohm J \pm W 5% (UB)
R53	" 100K ohm J \pm W 5% (UB)
R54	" 680 ohm J \pm W 5% (UB)
R55	" 510K ohm J \pm W 5% (UB)
R56	Carbon 560 ohm J \pm W 5% (UB)
R57	" 39K ohm J \pm W 5% (UB)
R58	" 560 ohm J \pm W 5% (UB)
R59	" 39K ohm J \pm W 5% (UB)
R60	" 100K ohm J \pm W 5% (UB)
R61	" 100K ohm J \pm W 5% (UB)
R62	" 1K ohm J \pm W 5% (UB)
R63	" 10K ohm J \pm W 5% (UB)
R64	" 27K ohm J \pm W 5% (UB)
R65	" 1M ohm J \pm W 5% (UB)
R66	" 100K ohm J \pm W 5% (UB)
R67	" 100K ohm J \pm W 5% (UB)
R68	" 100K ohm J \pm W 5% (UB)

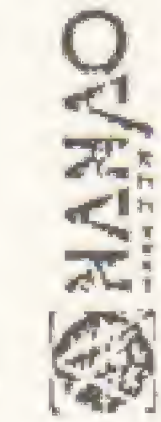
DATE: 1-2-12



SYMBOL NO.	DESCRIPTION
R104	Carbon 22K ohm J 1W 5% (UB) ○
R105	" 470K ohm J 1W 5% (UB) ○
R106	" 150K ohm J 1W 5% (UB) ○
R107	" 150K ohm J 1W 5% (UB) ○
R108	" 560K ohm J 1W 5% (UB) ○
R109	" 2.2K ohm J 1W 5% (UB) ○
R110	" 4.7K ohm J 1W 5% (UB) ○
R111	" 22K ohm J 1W 5% (UB) ○
R112	" 1K ohm J 1W 5% (UB) ○
R113	" 100 ohm J 1W 5% (UB) ○
R114	" 1K ohm J 1W 5% (UB) ○
R115	" 1K ohm J 1W 5% (UB) ○
R116	" 1K ohm J 1W 5% (UB) ○
R117	" 1K ohm J 1W 5% (UB) ○
R118	" 330 ohm J 1W 5% (UB) ○
R119	" 22K ohm J 1W 5% (UB) ○
RA1	Block IHR-8-472JA
RA2	" IHR-8-472JA
RA3	" IHR-8-472JA
RA4	" IHR-8-472JA
RA5	" IHR-8-472JA
RA6	" IHR-8-472JA
RA7	" IHR-8-472JA
RA8	" IHR-8-472JA
RA9	" IHR-8-223JA
VR1	Semi-Fixed VZ103KSL ₂ B-50K ohm



SYMBOL NO.	DESCRIPTION
R69	Carbon 1K ohm J 1W 5% (UB) ○
R70	" 10K ohm J 1W 5% (UB) ○
R71	" 100K ohm J 1W 5% (UB) ○
R72	" 100K ohm J 1W 5% (UB) ○
R73	" 10K ohm J 1W 5% (UB) ○
R74	" 10K ohm J 1W 5% (UB) ○
R75	" 10K ohm J 1W 5% (UB) ○
R76	" 47K ohm J 1W 5% (UB) ○
R77	" 2.2K ohm J 1W 5% (UB) ○
R78	" 3.3K ohm J 1W 5% (UB) ○
R79	" 10K ohm J 1W 5% (UB) ○
R80	" 27K ohm J 1W 5% (UB) ○
R81	" 220 ohm J 1W 5% (UB) ○
R82	" 2.2M ohm J 1W 5% (UB) ○
R83	" 12K ohm J 1W 5% (UB) ○
R84	" 1K ohm J 1W 5% (UB) ○
R85	" 2.2M ohm J 1W 5% (UB) ○
R86	" 10K ohm J 1W 5% (UB) ○
R87	" 68K ohm J 1W 5% (UB) ○
R88	" 10K ohm J 1W 5% (UB) ○
R89	" 22K ohm J 1W 5% (UB) ○
R90	" 390K ohm J 1W 5% (UB) ○
R91	" 100K ohm J 1W 5% (UB) ○
R92	" 22K ohm J 1W 5% (UB) ○
R93	" 1K ohm J 1W 5% (UB) ○
R94	" 22K ohm J 1W 5% (UB) ○
R95	" 330K ohm J 1W 5% (UB) ○
R96	" 150K ohm J 1W 5% (UB) ○
R97	" 150K ohm J 1W 5% (UB) ○
R98	" 680K ohm J 1W 5% (UB) ○
R99	" 1K ohm J 1W 5% (UB) ○
R100	" 560K ohm J 1W 5% (UB) ○
R101	" 150K ohm J 1W 5% (UB) ○
R102	" 150K ohm J 1W 5% (UB) ○
R103	" 470K ohm J 1W 5% (UB) ○



SYMBOL NO.	DESCRIPTION	
C34	Polyester	0.001 uf J 50V
C35	"	0.001 uf J 50V
C36	"	0.0068 uf J 50V
C37	"	0.022 uf J 50V
C38	"	0.001 uf J 50V
C39	"	0.001 uf J 50V
C40	Ceramic	12 pf J 50V
C41	Electrolytic	1 uf M 50V
C42	Polyester	0.0012 uf J 50V
C43	"	0.0012 uf J 50V
C44	Electrolytic	1 uf M 50V
C45	Polyester	0.022 uf J 50V
C46	"	0.1 uf J 50V
C47	Electrolytic	1 uf M 50V
C48	"	0.47 uf M 50V
C49	Polyester	0.0033 uf J 50V
C50	"	0.022 uf J 50V
C51	"	0.022 uf J 50V
C52	"	0.027 uf J 50V
C53	"	0.027 uf J 50V
C54	Ceramic	220 pf J 50V
C55	"	100 pf J 50V
C56	Polyester	0.0068 uf J 50V
C57	"	0.0068 uf J 50V
C58	Electrolytic	47 uf M 16V
C59	Polyester	0.0068 uf J 50V
C60	"	0.022 uf J 50V
C61	"	0.022 uf J 50V
C62	"	0.0068 uf J 50V
C63	"	0.001 uf J 50V
C64	"	0.068 uf J 50V
C65	"	0.068 uf J 50V
C66	"	0.068 uf J 50V
C67	"	0.015 uf J 50V
C68	"	0.015 uf J 50V

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Parts List Page Seven Of Thirteen

HANAO CORP. ST
TYPE 1404-S

SYMBOL NO.	DESCRIPTION	
C1	Ceramic BC	0.1 uf Z 12V or 16V
C2	"	0.1 uf Z 12V or 16V
C3	"	0.1 uf Z 12V or 16V
C4	"	0.1 uf Z 12V or 16V
C5	"	0.1 uf Z 12V or 16V
C6	"	0.1 uf Z 12V or 16V
C7	"	0.1 uf Z 12V or 16V
C8	"	0.1 uf Z 12V or 16V
C9	"	0.1 uf Z 12V or 16V
C10	"	0.1 uf Z 12V or 16V
C11	"	0.1 uf Z 12V or 16V
C12	"	0.1 uf Z 12V or 16V
C13	"	0.1 uf Z 12V or 16V
C14	"	0.1 uf Z 12V or 16V
C15	"	0.1 uf Z 12V or 16V
C16	"	0.1 uf Z 12V or 16V
C17	"	0.1 uf Z 12V or 16V
C18	"	0.1 uf Z 12V or 16V
C19	"	0.1 uf Z 12V or 16V
C20	Electrolytic	100 uf M 25V
C21	Tantal	10 uf M 25V
C22	Electrolytic	220 uf M 16V
C23	Polyester	0.15 uf J 50V
C24	Electrolytic	1000 uf M 10V
C25	"	1000 uf M 10V
C26	"	1 uf M 50V
C27	"	47 uf M 16V
C28	"	1 uf M 50V
C29	Polyester	0.01 uf J 50V
C30	"	0.01 uf J 50V
C31	Electrolytic	0.47 uf M 50V
C32	Polyester	0.0033 uf J 50V
C33	Electrolytic	1 uf M 50V

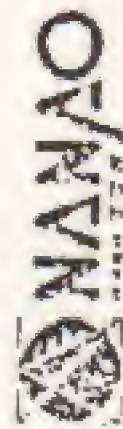
HANAO CORP. ST
TYPE 1404-S



SYMBOL NO.	DESCRIPTION	
C104	Ceramic BC	uf Z 12V or 16V
C105	"	uf Z 12V or 16V
C106	"	uf Z 12V or 16V
C107	"	uf Z 12V or 16V
C108	"	uf Z 12V or 16V
C109	"	uf Z 12V or 16V
C110	"	uf Z 12V or 16V
C111	"	uf Z 12V or 16V
C112	"	uf Z 12V or 16V
C113	"	uf Z 12V or 16V
C114	"	uf Z 12V or 16V
C115	"	uf Z 12V or 16V
C116	"	uf Z 12V or 16V
C117	"	uf Z 12V or 16V
C118	"	uf Z 12V or 16V
C119	"	uf Z 12V or 16V
C120	"	uf Z 12V or 16V
C121	"	uf Z 12V or 16V
C122	"	uf Z 12V or 16V
C123		
C124	Ceramic	uf Z 50V
	Ceramic BC	uf Z 12V or 16V
	Ceramic	pf J 50V

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NANAO (COMP. ST.
TYPE T401-S



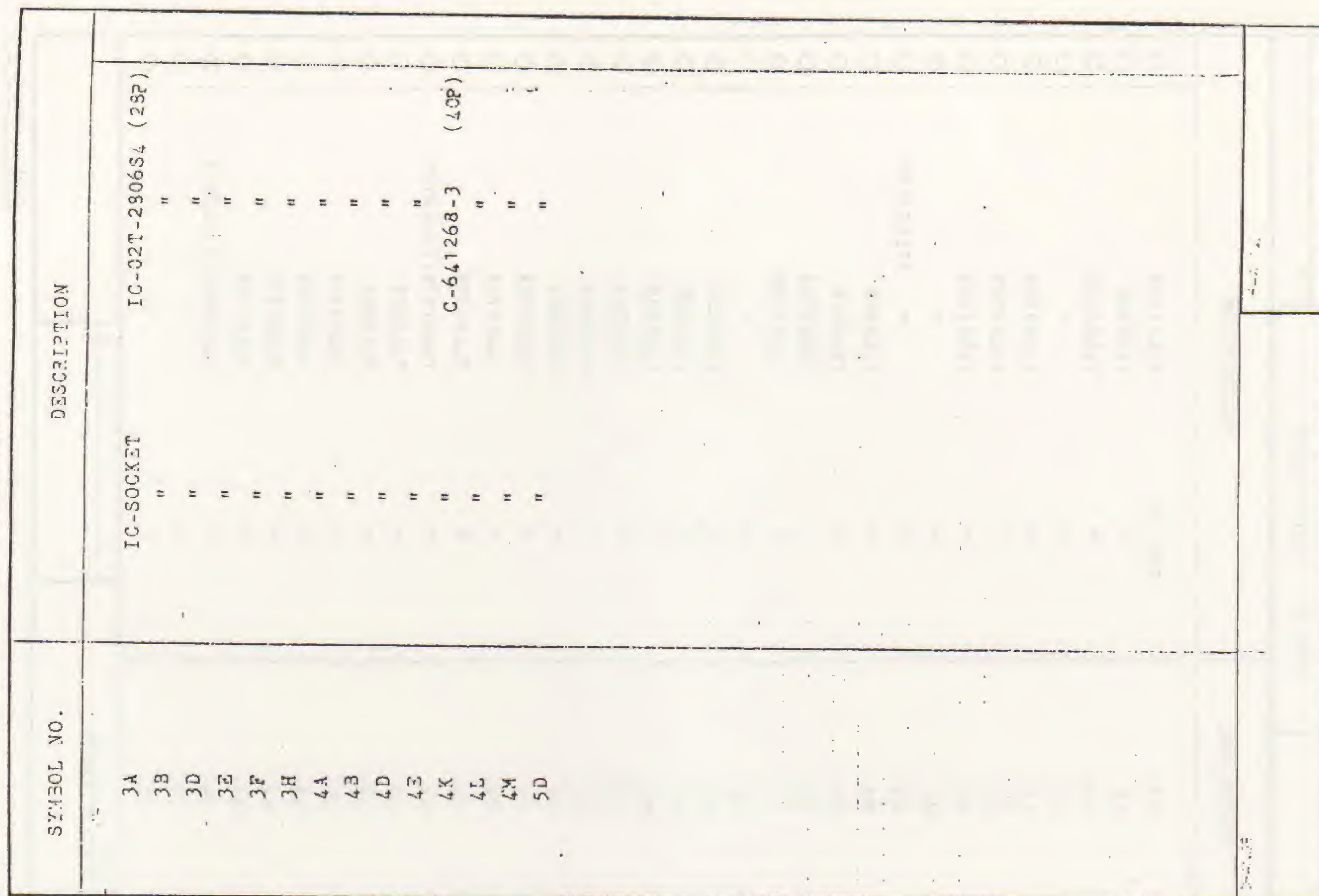
SYMBOL NO.	DESCRIPTION	
C69	Polyester	uf J 50V
C70	"	uf J 50V
C71	Ceramic	pf J 50V
C72	Polyester	uf J 50V
C73	"	uf J 50V
C74	Ceramic	pf J 50V
C75	"	pf J 50V
C76	Polyester	uf J 50V
C77	"	uf J 50V
C78	Electrlytic	uf M 16V
C79	Ceramic BC	uf Z 12V or 16V
C80	Electrlytic	uf M 16V
C81	Ceramic	uf J 50V
C82	"	pf K 50V
C83	Ceramic BC	uf Z 12V or 16V
C84	"	uf Z 12V or 16V
C85	"	uf Z 12V or 16V
C86	"	uf Z 12V or 16V
C87	"	uf Z 12V or 16V
C88	"	uf Z 12V or 16V
C89	"	uf Z 12V or 16V
C90	"	uf Z 12V or 16V
C91	"	uf Z 12V or 16V
C92	"	uf Z 12V or 16V
C93	"	uf Z 12V or 16V
C94	"	uf Z 12V or 16V
C95	"	uf Z 12V or 16V
C96	"	uf Z 12V or 16V
C97	"	uf Z 12V or 16V
C98	"	uf Z 12V or 16V
C99	"	uf Z 12V or 16V
C100	"	uf Z 12V or 16V
C101	"	uf Z 12V or 16V
C102	"	uf Z 12V or 16V
C103	"	uf Z 12V or 16V

1000 pF = 1000 pF

SYMBOL NO.	DESCRIPTION
X1	CRYSTAL 384 KHz
X2	" 3.579545 MHz
CN1	CONNECTOR XG3A-6014
CN2	"
	SOCKET XG3M-6001 (2)
	STRAIN RELIEF XG3T-6004 (2)
J1	SHORT-BASE IMSA-9202B-1-3
J2	SHORT-HEAD IMSA-9202-H
J3	SHORT-BASE IMSA-9202B-1-3
J4	SHORT-HEAD IMSA-9202-H
J5	SHORT-BASE IMSA-9202B-1-3
J6	SHORT-HEAD IMSA-9202-H
J7	
	HEART-SINK 5D00609 (DRAW NO.)
	TAP-SCREW-2-P-BIND 3x8 (2)
	PCB M62-A-B

M62-A
Parts List Page Eleven Of Thirteen

SYMBOL NO.	DESCRIPTION
D1	Diode S52773
D2	"
D3	1S1588
D4	"
D5	"
D6	"
D7	"
D8	"
TR1	Transistor 2SC2120
TR2	"
TR3	2SC945
TR4	"
TR5	"
TR6	"
TR7	"
TR8	2SC1815
TR9	2SC945
TR10	"
1A	DIP-SW A6MS-8
2A	"



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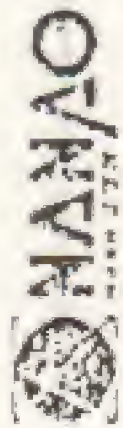
SYMBOL NO.	DESCRIPTION
CAPACITORS	
C1	Ceramic BC 0.1 uf Z 12V or 16V ○
C2	" 0.1 uf Z 12V or 16V ○
C3	" 0.1 uf Z 12V or 16V ○
C4	" 0.1 uf Z 12V or 16V ○
C5	" 0.1 uf Z 12V or 16V ○
C6	" 0.1 uf Z 12V or 16V ○
C7	" 0.1 uf Z 12V or 16V ○
C8	" 0.1 uf Z 12V or 16V ○
C9	" 0.1 uf Z 12V or 16V ○
C10	" 0.1 uf Z 12V or 16V ○
C11	" 0.1 uf Z 12V or 16V ○
C12	" 0.1 uf Z 12V or 16V ○
C13	" 0.1 uf Z 12V or 16V ○
C14	" 0.1 uf Z 12V or 16V ○
C15	" 0.1 uf Z 12V or 16V ○
C16	" 0.1 uf Z 12V or 16V ○
C17	" 0.1 uf Z 12V or 16V ○
C18	" 0.1 uf Z 12V or 16V ○
C19	" 0.1 uf Z 12V or 16V ○
C20	" 0.1 uf Z 12V or 16V ○
C21	" 0.1 uf Z 12V or 16V ○
C22	" 0.1 uf Z 12V or 16V ○
C23	" 0.1 uf Z 12V or 16V ○
C24	" 0.1 uf Z 12V or 16V ○
C25	" 0.1 uf Z 12V or 16V ○
C26	Ceramic 22 pf J 50V ○
C27	" 47 pf J 50V ○
C28	Ceramic BC 0.1 uf Z 12V or 16V ○
C29	" 0.1 uf Z 12V or 16V ○
C30	" 0.1 uf Z 12V or 16V ○
C31	" 0.1 uf Z 12V or 16V ○
C32	" 0.1 uf Z 12V or 16V ○
C33	" 0.1 uf Z 12V or 16V ○
C34	" 0.1 uf Z 12V or 16V ○

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SYMBOL NO.	DESCRIPTION
RESISTORS	
R1	Carbon 220 ohm J 1W 5%
R2	" 470 ohm J 1W 5%
R3	" 1K ohm J 1W 5%
R4	" 2.2K ohm J 1W 5%
R5	" 1K ohm J 1W 5%
R6	" 470 ohm J 1W 5%
R7	" 220 ohm J 1W 5%
R8	" 2.2K ohm J 1W 5%
R9	" 470 ohm J 1W 5%
R10	" 2.2K ohm J 1W 5%
R11	" 1K ohm J 1W 5%
R12	" 470 ohm J 1W 5%
R13	" 220 ohm J 1W 5%
R14	" 470 ohm J 1W 5%
R15	" 470 ohm J 1W 5%
R16	
R17	
R18	Carbon 1K ohm J 1W 5%
R19	" 1K ohm J 1W 5%
R20	
R21	Carbon 1K ohm J 1W 5%
R22	" 1K ohm J 1W 5%
R23	" 1K ohm J 1W 5%

五洲电子厂



SYMBOL NO.	DESCRIPTION
J8	SHORT-BASE IMSA-9202B-1-3
J9	SHORT-HEAD IMSA-9202-H
1L	IC-SOCKET
1M	IC-02T-1603S4 (16P)
1N	"
3M	IC-02T-2806S4 (28P)
3N	"
4A	"
4C	"
4D	"
4E	"
4F	"
4J	"
4K	"
4L	"
4M	"
4N	"
6F	IC-02T-1603S4 (16P)
PCB	M62-B-B

Parts List M62-B
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TYPE 3400-5
NANAO GROUP LTD.

TYPE 3400-5
NANAO GROUP LTD.

SYMBOL NO.	DESCRIPTION
C35	Ceramic 3C 0.1 uf Z 12V or 15V
C36	" 0.1 uf Z 12V or 15V
C37	" 0.1 uf Z 12V or 15V
C38	" 0.1 uf Z 12V or 15V
	Ceramic 33 pf J 50V
	" 390 pf J 50V
X1	CRYSTAL 24 MHz
X2	" 18.432 MHz
CN1	CONNECTOR FC60A2MAB and FO
CN2	" FC60A2MAB and FO
J1	SHORT-BASE IMSA-9202B-1-3
J2	SHORT-HEAD IMSA-9202-H
J3	SHORT-BASE IMSA-9202B-1-3
J4	SHORT-HEAD IMSA-9202-H
J5	SHORT-BASE IMSA-9202B-1-3
J6	SHORT-HEAD IMSA-9202-H
J7	SHORT-BASE IMSA-9202B-1-3
	SHORT-HEAD IMSA-9202-H

TYPE 3400-5
NANAO GROUP LTD.

The logo consists of the letters "FBI" in a large, bold, sans-serif font. The letters are white and are set against a solid black rectangular background.

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